

## ABSTRACT OF THE DISCLOSURE

A beta detector assembly for use in the synthesis and analysis of radiopharmaceuticals, such as in microfluidic radiochromatography. The beta detector assembly includes a base, preferably fabricated from glass so as to take advantage of electroosmotic flow, that serves as the body of the beta detector assembly. A microfluidic channel passes through the length of the base. A solid-state charge particle detector, for detecting beta particles, is provided and is positioned with respect to the base so as to receive beta particles. A portion of the base is disposed between the microfluidic channel and the solid-state charge particle detector and has a thickness that is selected to substantially allow transmission of beta particles there thru for detection by the charge particle detector. In one embodiment, the base is fabricated of glass. In another embodiment, the base is fabricated of silicon such that the base and the solid-state charge particle detector are integral.